

AMENDMENTS TO THE CLAIMS

Claim 1 (Currently Amended): An apparatus for purifying and vaporizing organic molecules contained in a crude material, the apparatus comprising

a non-metallic crucible including an outer surface and an inner surface having a bottom configured to support the crude material;

a baffle comprising a glass wool in the crucible above the bottom; and

a heater configured to heat the crucible and the baffle, wherein

the glass wool comprises glass fibers; and

a mass of the glass fibers in each cm³ of the glass wool is uniform throughout the glass wool.

Claim 2 (Original): The apparatus according to Claim 1, wherein the crucible comprises an electrically insulating material.

Claim 3 (Original): The apparatus according to Claim 1, wherein the crucible comprises a material selected from the group consisting of alumina, silicon nitride, boron nitride and graphite.

Claim 4 (Original): The apparatus according to Claim 1, wherein the glass wool comprises a glass selected from the group consisting of borosilicate glasses, aluminosilicate glasses, and fused silica glasses.

Claim 5 (Canceled)

Claim 6 (Original): The apparatus according to Claim 1, wherein the glass wool blocks all lines of sight from the bottom of the crucible to an exterior of the crucible.

Claim 7 (Original): The apparatus according to Claim 1, wherein
the crucible further comprises an opening to an exterior of the crucible opposite the bottom of the crucible; and
the glass wool is between the opening of the crucible and a point halfway between the opening of the crucible and the bottom of the crucible.

Claim 8 (Original): The apparatus according to Claim 1, wherein the inner surface includes a support configured to support the glass wool above the bottom of the crucible.

Claim 9 (Original): The apparatus according to Claim 1, wherein the heater comprises a resistive heater.

Claims 10-20 (Canceled)

SUPPORT FOR THE AMENDMENT

This Amendment cancels Claims 5 and 10-20; and amends Claim 1. Support for the amendments is found in the specification and claims as originally filed. In particular, support for Claim 1 is found in canceled Claim 5. No new matter would be introduced by entry of these amendments.

Upon entry of these amendments, Claims 1-4 and 6-9 will be pending in this application. Claim 1 is independent.

ELECTION

Applicants hereby affirm the provisional election of August 9, 2003, to prosecute the invention of Group I, Claims 1-9.

REQUEST FOR RECONSIDERATION

Applicant respectfully requests entry of the foregoing and reexamination and reconsideration of the application, as amended, in light of the remarks that follow.

The present invention provides an apparatus for purifying organic molecules. The apparatus includes a crucible, a baffle of glass wool in the crucible above the bottom of the crucible, and a means for heating the crucible and glass wool. When placed under a vacuum, the means for heating heats the crucible and glass wool, and a crude material in the crucible, causing the desired organic molecules in the crude material to vaporize and condense in purified form on the glass wool. The heat also causes the organic molecules that condense on the glass wool to vaporize and leave the crucible, where they deposit as a pure film on a substrate. See, e.g., specification at page 2, lines 9-23.

Claims 1-9 are rejected under 35 U.S.C. § 112, first paragraph as failing to comply with the enablement requirement. The Office Action asserts at page 3, lines 1-5 that:

The claims recite an apparatus for purifying a crude material, but the composition of the crude material is not properly disclosed in the specification. The specification at page 6, lines 22-24, describes a residue 6, consisting of impurities, but fails to explain what kind of impurities that Applicant intends for his apparatus to remove from the crude material that he intends to purify.

Applicants respectfully traverse the rejection. As discussed above, the apparatus of the present invention is for removing by vaporization organic molecules that were originally in a crude material, and then collecting the isolated (purified) organic molecules.

Furthermore, the specification at page 4, lines 26-27, discloses that:

The organic crude material 3 includes desired organic molecules and a mixture with various impurities which can be organic or inorganic.

Applicant submits that the specification enables the skilled artisan to separate desired organic molecules from impurities without undue experimentation. Vaporization processes (e.g., distillation) are well known in the art in which desired high vapor pressure material in a crude material is separated from low vapor pressure materials and purified.

Because the specification enables Claims 1-9, the rejection under 35 U.S.C. § 112, first paragraph, should be withdrawn.

Claims 1-9 are rejected under 35 U.S.C. § 102(b) or, in the alternative, under 35 U.S.C. § 103(a) over U.S. Patent No. 3,650,823 ("Mead"). In addition, Claims 1-9 are rejected under 35 U.S.C. § 103(a) over JP 54-96360 ("Kikuchi") taken in view of Mead or U.S. 2001/0008121 ("Tanabe"). Claims 1-9 are rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 5,104,695 ("Greer") taken in view of Kikuchi, U.S. Patent No. 3,603,285 ("Nichol"), Journal of the Optical Society of America ("Howson") and/or Vapor Deposition ("Powell"). Furthermore, Claims 1-9 are rejected under 35 U.S.C. § 103(a) over Greer taken in view of Kikuchi, Nichol, Howson and/or Powell taken in further view of U.S. Patent No. 6,237,529 ("Spahn").

Mead at column 2, lines 27-64, discloses glass or quartz wool material 48 filled between baffles 44 and 46 in a crucible 10 to preferentially adsorb vapors leaving the top of a melt 40.

Kikuchi discloses a crucible 14 including a baffle layer 7 consisting of quartz wool.

Tanabe is cited in the Office Action at page 4, lines 2-4, for disclosing refractory materials conventionally used in high temperature crucibles.

The Office Action at page 4, lines 15-17, admits that Greer does not suggest the use of glass wool as a baffle material.

According to Nichol at column 3, lines 33-34, "[i]t is unnecessary to baffle a tube 20 ... by a quartz wool plug as has been suggested in the prior art".

Howson at page 272, column 2, lines 9-10, discloses subliming through glass wool to prevent spitting.

Powell at page 271, lines 5-9, discloses loosely packing a tube with binder-free glass cloth.

Spahn at abstract discloses placing a baffle in a crucible.

However, the cited prior fails to suggest the limitation of independent Claim 1 of "a baffle comprising a glass wool ..., wherein the glass wool comprises glass fibers; and a mass of the glass fibers in each cm^3 of the glass wool is uniform throughout the glass wool". The uniform density of the glass wool promotes the vaporization/purification process carried out in the apparatus of the present invention. See, e.g., specification at page 4, lines 1-2. Because the cited prior art fails to suggest all the limitations of independent Claim 1, the various prior art rejections should be withdrawn.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance. Applicants respectfully request favorable consideration and prompt allowance of the application.

Should the Examiner believe that anything further is necessary in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicant's undersigned attorney at the telephone number listed below.

Respectfully submitted,

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